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AMENDMENTS TO THE SPECIFICATION**In the Specification:**

Please replace the paragraph beginning at page 13, line 3 with the following amended paragraph:

Turning now to Fig. 14, four computers A, B, C, and D networked together are illustrated. Machines A, B and C had previously arrived at the state illustrated in Prior Art Fig. 10. Then, machine D came online and rather than announcing its presence *via* an ARP broadcast after waiting a random period of time, machine D employed an ARP probe and the method described above in connection with Figs. 12 and 13 to determine whether there was a duplicate IP address conflict problem. While conventional systems may similarly generate an ARP probe, such conventional systems may not attempt to determine whether they are connected to an active network and may not employ the random time delay before sending the ARP probe(s). Note that machine D has an IP address ~~1.2.3.4~~ 1.2.3.4 that is a duplicate of the IP address of machine A. However, the physical addresses (2233 and 1144) do not match.

Please replace the paragraph beginning at page 22, line 12 with the following amended paragraph:

A session layer 330 resides below the presentation layer 320 and once again the session layer 330 should similarly be unaware of the presence and/or functionality of an ARP component. The session layer 330 typically provides applications (*e.g.*, in the application layer 310) with data streams oriented to a session user. A transport layer 340 resides below the session layer 330. One example transport layer 340 employs TCP components that interact with IP components that reside in a network layer 350. The TCP components should be unaware of the ARP processing and should simply receive a stream of TCP Segments (*e.g.*, 130 through 132, Prior Art Fig. 2) from IP components. The network layer 350 (*e.g.*, the IP components), are aware of the ARP presence and

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functions because it is the translation of IP addresses to physical addresses with which the ARP components are concerned. Such translation is necessary because network layer components (*e.g.*, IP components) are conventionally associated with an IP addresses address, (which is hopefully unique), but lower layers (*e.g.*, a physical layer 370) are conventionally associated with a hard coded physical address. Thus the physical layer 370 (*e.g.*, an Ethernet layer) is aware of the ARP component presence and functions. The network layer 350 is employed in sending/receiving packets of data end to end from the source to the destination, over intermediate nodes if necessary.

Please replace the paragraph beginning at page 24, line 1 with the following amended paragraph:

Prior Art Fig. 6 illustrates a computer network 500 where three computers (A, B, C) are networked together. The networking involves ARP Cache tables (ARPCaches). Computer A is associated with an ARPCache 530, computer B is associated with an ARPCache 510 and computer C is associated with an ARPCache 520. At the point in time associated with Prior Art Fig. 6, the three computers have not yet communicated, and have not broadcast their IP/physical address resolved pairs, and thus the ARPCaches contain only the "static" addresses associated with the computers. Thus, the ARPCache 530 contains the IP address 1.2.3.4 and its associated physical address 1144. Similarly, the ARPCache 510 contains the IP address ~~A.B.C.D.~~ A.B.C.D and the associated physical address AADD and the ARPCache 520 contains the IP address 5.6.7.8 and the associated physical address 5588. It is to be appreciated that the IP addresses and physical addresses illustrated in the figures are merely representative and that actual IP addresses and/or physical addresses may have different formats from those illustrated. It can be seen that in such an initial state, machines know their own IP address and their own physical address (paddr). When the machines attempt to communicate *via* the network, the ARPCaches of the communicating machines will be updated. Conventionally, such updating is accomplished by employing ARP request/response pairs.

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Thus, turning to Prior Art Fig. 7, a network 600 comprising three computers networked together (computer A, computer B, computer C) is illustrated. The network 600 includes ARPCaches. Computer A is associated with an ARPCache 630, computer B is associated with an ARPCache 610 and computer C is associated with an ARPCache 620. At the point in time associated with Prior Art Fig. 7, the ARPCaches contain the "static" addresses associated with the computers. Thus, the ARPCache 630 contains the IP address 1.2.3.4 and its associated physical address 1144. Similarly, the ARPCache 610 contains the IP address ~~A.B.C.D.~~ A.B.C.D and the associated physical address AADD and the ARPCache 620 contains the IP address 5.6.7.8 and the associated physical address 5588. In addition to the static addresses, machine A has broadcast its resolved IP/physical address pair onto the network by, for example, a conventional ARP broadcast. Thus, the ARPCache 610 includes the IP address 1.2.3.4 and the associated physical address 1144, where the IP/physical address pair represents the resolved IP/physical address pair provided by machine A. Similarly, the ARPCache 620 includes the IP address 1.2.3.4 and the associated physical address 1144, where the IP/physical address pair represents the resolved IP/physical address pair provided by machine A. Updating ARPCaches when a machine attaches to a network using the broadcast method illustrated in Prior Art Fig. 7 leads to potential duplicate IP address problems that are addressed by the present invention.

Please replace the five paragraphs beginning at page 25, line 6 with the following amended paragraphs:

Prior Art Fig. 8 illustrates a network 700 comprising three computers networked together (computer A, computer B, computer C). The network 700 includes ARPCaches. Computer A is associated with an ARPCache 730, computer B is associated with an ARPCache 710 and computer C is associated with an ARPCache 720. At the point in time associated with Prior Art Fig. 8, the ARPCaches contain the "static" addresses associated with the computers. Thus, the ARPCache 730 contains the IP address 1.2.3.4 and its associated physical address 1144. Similarly, the ARPCache 710 contains the IP address ~~A.B.C.D.~~ A.B.C.D and the associated physical address AADD and the

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ARPCache 720 contains the IP address 5.6.7.8 and the associated physical address 5588. In addition to the static addresses, machine A has broadcast its resolved IP/physical address pair onto the network by, for example, a conventional ARP broadcast. Thus, the ARPCache 710 includes the IP address 1.2.3.4 and the associated physical address 1144, where the IP/physical address pair represents the resolved IP/physical address pair provided by machine A. Similarly, the ARPCache 720 includes the IP address 1.2.3.4 and the associated physical address 1144, where the IP/physical address pair represents the resolved IP/physical address pair provided by machine A.

In addition to the static addresses and the information broadcast by machine A, the ARPCache 730 also contains an entry with an IP address ~~A.B.C.D.~~ A.B.C.D and a physical address AADD, which represent the resolved IP/physical address of machine B. The ARPCache 730 was updated in response to A's attempt to communicate with machine B. When A wanted to communicate with B, A sent an ARP request with a source IP address of 1.2.3.4, a source physical address of 1144, a target IP address of ~~A.B.C.D.~~ A.B.C.D (which represents the IP address of the machine with which A wants to communicate) and a target physical address of 0, representing the fact that machine A does not know, but would like to know, the physical address of the machine associated with the IP address A.B.C.D. When machine C encountered the ARP request, it determined that the IP address did not match its IP address, and thus machine C ignored the request. But when machine B encountered the ARP request, it determined that the IP address did match its IP address, and thus machine B replied to the ARP request. B generated an ARP response with a source IP address ~~A.B.C.D.~~ A.B.C.D, a source physical address AADD (which was used to fill in the ARPCache 730), a target IP address of ~~1.2.3.4.~~ 1.2.3.4 (the IP address of the machine A that requested the response) and a target physical address of 1144 (the physical address of the machine A that requested the response). Machine A receives the reply, determines that the target IP address matches its IP address, and updates its ARPCache based on the reply generated by machine B. This conventional method is susceptible to problems generated by duplicate addresses. One such problem will be illustrated in connection with Prior Art Figs. 8 through 11.

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Thus, turning to Prior Art Fig. 9, a computer network 800 where three computers (A, B, C) are networked together is illustrated. None of the three computers has announced its presence *via* an ARP broadcast. The network 800 involves ARP Cache tables (ARPCaches). Computer A is associated with an ARPCache 830, computer B is associated with an ARPCache 810 and computer C is associated with an ARPCache 820. At the point in time associated with Prior Art Fig. 9, the three computers have not yet communicated, and have not broadcast their IP/Physical address resolved pairs, and thus the ARPCaches contain only the "static" addresses associated with the computers. Thus, the ARPCache 830 contains the IP address 1.2.3.4 and its associated physical address 1144. Similarly, the ARPCache 810 contains the IP address ~~A.B.C.D.~~ A.B.C.D and the associated physical address AADD and the ARPCache 820 contains the IP address 5.6.7.8 and the associated physical address 5588. When the machines attempt to communicate the ARPCaches of the communicating machines will be updated. Conventionally, such updating is accomplished by employing ARP request/response pairs as discussed in association with Prior Art Fig. 8. But such conventional methods can lead to duplicate IP address problems, as described below.

Prior Art Fig. 10 illustrates a network 900 comprising three computers networked together (computer A, computer B, computer C). The network 900 includes ARPCaches. Computer A is associated with an ARPCache 930, computer B is associated with an ARPCache 910 and computer C is associated with an ARPCache 920. At the point in time associated with Prior Art Fig. 10, the ARPCaches contain the "static" addresses associated with the computers. Thus, the ARPCache 930 contains the IP address 1.2.3.4 and its associated physical address 1144. Similarly, the ARPCache 910 contains the IP address ~~A.B.C.D.~~ A.B.C.D and the associated physical address AADD and the ARPCache 920 contains the IP address 5.6.7.8 and the associated physical address 5588.

ARPCache 930 also contains an entry with an IP address ~~A.B.C.D.~~ A.B.C.D and a physical address AADD, which represent the resolved IP/physical address of machine B. The ARPCache 930 was updated in response to A's attempt to communicate with machine B. When A wanted to communicate with B, A sent an ARP request with a source IP address of 1.2.3.4, a source physical address of 1144, a target IP address of ~~A.B.C.D.~~ A.B.C.D (which represents the IP address of the machine with which A wants

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to communicate) and a target physical address of 0, representing the fact that machine A does not know, but would like to know, the physical address of the machine associated with the IP address A.B.C.D. When machine C encountered the ARP request, it determined that the IP address did not match its IP address, but it also determined that it did not have the resolved pair ~~1.2.3.4~~, 1.2.3.4 and 1144. Thus, machine C updated its ARPCache 920 with such a pair. When machine B encountered the ARP request, it determined that the IP address did match its IP address, and thus machine B replied to the ARP request. B generated an ARP response with a source IP address ~~A.B.C.D~~, A.B.C.D, a source physical address AADD (which was used to fill in the ARPCache 730), a target IP address of ~~1.2.3.4~~, 1.2.3.4 (the IP address of the machine A that requested the response) and a target physical address of 1144 (the physical address of the machine A that requested the response). Machine B similarly determined that it did not have the resolved pair ~~1.2.3.4~~, 1.2.3.4 and 1144. Thus, machine B updated its ARPCache 910 with such a pair.

Please replace the paragraph beginning at page 27, line 29 with the following amended paragraph:

Prior Art Fig. 11 illustrates four computers A, B, C, and D networked together. Machines A, B and C had previously arrived at the state illustrated in Prior Art Fig. 10 by the methods described in Prior Art Figs. 8 and 9. Then, machine D came online and announced its presence *via* an ARP broadcast. Note that machine D has an IP address ~~1.2.3.4~~, 1.2.3.4 that is a duplicate of the IP address of machine A. However, the physical addresses (2233 and 1144) do not match. When machine D came online, and announced its presence *via* a conventional ARP broadcast, machines B and C updated their ARPCaches. For example, machine B noted the broadcast from D, determined that it had an entry for the IP address ~~1.2.3.4~~, 1.2.3.4, but also determined to overwrite that entry, and replace the old resolved pair of ~~1.2.3.4~~, 1.2.3.4 and 1144 with the newly encountered resolved pair of ~~1.2.3.4~~, 1.2.3.4 and 2233. Similarly, machine C noted the broadcast from D, determined that it had an entry for the IP address ~~1.2.3.4~~, 1.2.3.4, but also determined to overwrite that entry, and replace the old resolved pair of ~~1.2.3.4~~, 1.2.3.4 and 1144 with

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the newly encountered resolved pair of ~~1.2.3.4~~, 1.2.3.4 and 2233. Such a determination may have been based, for example, on an assumption that the resolved IP address/physical address pair changed because an IP component updated its networking hardware. Thus, the groundwork for problems associated with a duplicate IP address has been laid. Machine A, which also encountered the broadcast from D, did not update its ARPcache 1030 since a machine will typically not overwrite its static address. Now, when machine A wants to communicate with machine B, machine A sends a message with a source IP address of ~~1.2.3.4~~, 1.2.3.4, a source physical address of 1144, a target IP address of A.B.C.D and a target physical address of AADD. Thus, machine B determines that it is the intended recipient of the message, and further determines that no updating of the ARPcache 1010 is required since all source and destination addresses are populated, the message is not an ARP request (e.g., as indicated by values in one or more header fields), and ARPcache entries exist for the provided addresses. When machine B formats its response to the message from machine A, machine B will populate the one or more headers in one or more packets and/or Ethernet frames with the information in the ARPcache 1010, which will route the packets and frames to machine D, not to machine A. Thus, machine A will not receive the reply packets that it is expecting, and may retransmit replacement packets, which may be handled in the same manner by machine B. Furthermore, machine D will begin receiving a supply of reply packets that it is not expecting, which may include a large number of duplicates in response to the retransmissions from machine A. Such a situation can be difficult to debug and remedy. As the condition persists, and more packets are generated during the duplicate address situation, machines A, B and D become vulnerable to crashes, and other problems. Thus, a method to identify and prevent the duplicate IP address situation is still needed.